# B² audio

MODEL: MONO

PRODUCT ID:MONO15D

# Mono

## OWNER'S MANUAL

United States USACi Autosound Competition International

dB Drag Racing

dB Drag Racing BASS Race

IASCA INDUSTRY MEMBER

CE

## INTRODUCTION

We thank you for purchasing our amplifiers. Your decision to be part of something different is what we strive for.
Our products reflects who we are, going to the extent to deliver you our finest comes natural.
Our amplifiers are engineered to accomodate a variety of applications. Whether it is SPL or SQ, the sound provided will be clean & dynamic.
We refer to it as SQL audiophile products, based on optimizing every aspect of the amplifier to have the highest possible efficiency, while minimizing distortion, causing less stress on the audio reproduction and increasing the Sound Quality & output performance.

To obtain the full potential of the amplifier & to minimize failure, it is strongly recommended & necessary to upgrade the stock electrical system. Ensure the system is in accordance with the full performance of the amplifier.
It is therefore essential to read through the whole manual.

For continious news & updates feel free to visit us at
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### Better Bass

BETTER BASS IS OUR PHILOSOPHY OF ADDING SOMETHING EXTRA.
KEEP IN MIND THAT CONTINIOUS EXPOSURE TO SPL ABOVE 100 DB CAN SERIOUSLY DAMAGE YOUR HEARING. TODAY'S HIGH POWER AUTO SOUND SYSTEMS CAN EASILY PRODUCE SPL OVER 140 DB. ENJOY YOUR MUSIC WITH SENSE.

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## DESIGN FEATURES

*Mono*

| | |
|---|---|
| CIRCUIT CONFIGURATION: | HI-EF CLASS D |
| FREQUENCY RESPONSE: | 15 HZ - 250 HZ |
| SIGNAL TO NOISE RATIO: | > 100 DB |
| INPUT SENSITIVITY: | 6 V - 0.2 V |
| CROSSOVER CIRCUIT: | 24 DB / OCTAVE |
| LOW PASS CROSSOVER: | 35 HZ - 250 HZ |
| SUBSONIC CROSSOVER: | 35 HZ |
| DAMPING FACTOR: | > 300 |
| BASS BOOST FREQUENCY: | 0 DB - 9 DB |
| BASS BOOST: | 35 HZ - 100 HZ |
| REMOTE CONTROL: | INCLUDED |
| POWER TERMINAL GAUGE: | 0 GA X 1 |
| FUSE RATING: | 150A |
| DIMENSIONS: | 9.84" X 2.52" X 13.38" / 250 MM X 64 MM X 340 MM |

All features are subject to change in the continuing effort to improve the products without notice.

## SPECIFICATIONS

### CONTINIOUS OUTPUT POWER (RMS)

| | (12 V < 1% THD) | (14.4 V < 1% THD) | (16 V < 1% THD) |
|---|---|---|---|
| POWER @ 4 Ω: | 300 W X 1 | 600 W X 1 | 700 W X 1 |
| POWER @ 2 Ω: | 600 W X 1 | 1200 W X 1 | 1400 W X 1 |
| POWER @ 1 Ω: | 1200 W X 1 | 1800 W X 1 | 2200 W X 1 |
| | | 2000 W X 1 <5% THD | |

### DESCRIPTION OF SPECIFICATIONS

Stable impedance load of the Mono is 1 Ohm.
Operation below minimum impedance will stress the amplifier & void the warranty.
Excessive heat will also appear at a faster rate and the and the amplifier will go into thermal protection.

Protection can also be caused by the following
* Speaker overload
* Short circuit
* Input Voltage - RCA & Power Supply

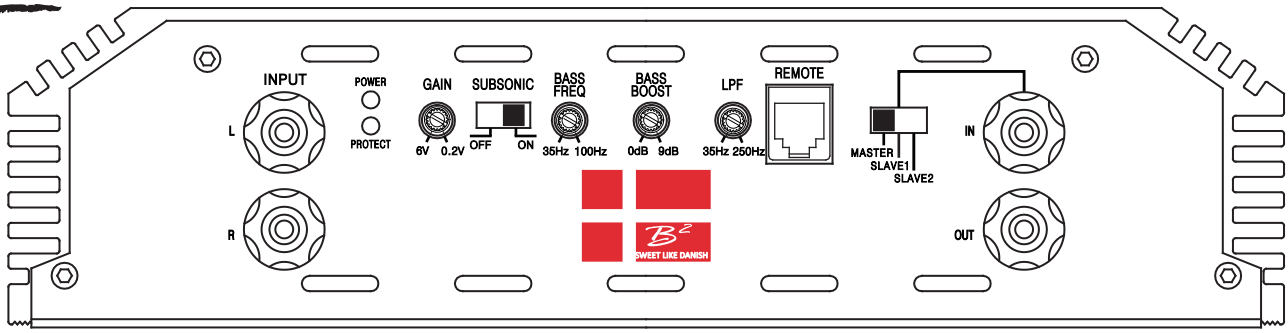
The PCB is a HI-EF Class D design. THE HI-EF circuit optimizes efficiency & improves performance even at low voltages.

Operational voltage: 9 V ~ 16 V.
Operational voltage will also be affected by the load of the amplifier.

*In order to get the full power output of the amplifier, it is crucial that your electical system is correctly (over)dimensioned.

## PANEL LAYOUT

*Mono*




### INPUT
RCA signal input for Left & Right channel.
A minimum of 0.2 v input signal is required for correct operation.

### POWER & PROTECTION INDICATOR
Power LED, blue light shows correct operation,
Protect LED, red light shows general malfunction, faulty connection or thermal protection.

### GAIN (6V-0.2V)
Adjusts signal input voltage from the source to match the amplifiers input stage.
0.2 V ~ 6 V is the operational voltage.
Voltages beyond may cause damage.

### SUBSONIC SWITCH (OFF / ON)
ON setting will activate the subsonic crossover at 35 Hz & 24 dB per octave. It is highly recommended to use the ON setting to avoid unnecessary strain to your sound system.

### BASS FREQ (35 HZ -100 HZ)
Adjustable bass boost frequency between 35 Hz ~ 100 Hz.
Use with caution, boosting the wrong frequency may conflict with the performance of your enclosure design.

### BASS BOOST
Variable signal boost of the BASS FREQ chosen with 0 dB ~ 9 dB.

### LPF (LOW PASS FILTER 35 HZ -250 HZ, 24 DB/OCT)
Adjusts the cut off point for the low pass crossover at the frequency chosen.

### REMOTE LEVEL CONTROL PORT
Connection of external signal level control.
CAUTION, the amplifier needs to be gained in accordance with the remote to avoid excessive signal boost.

### MASTER / SLAVE 1
Enables daisy chain (strapped mode) of 2 amplifiers.
Minimum warrantied impedance is 2 ohm.
See page 8 for complete instructions on how to run the amplifiers in linked mode.

### MASTER / SLAVE 2
For connection of multiple amplifiers in a chain.
The MASTER amplifier's settings (Gain, Bass Freq / Boost, crossover point will be routed to subsequent amplifiers being set as SLAVE2. The MASTER amplifier will control all settings of the SLAVE2 amplifiers.
(IT IS NOT A STRAP MODE)

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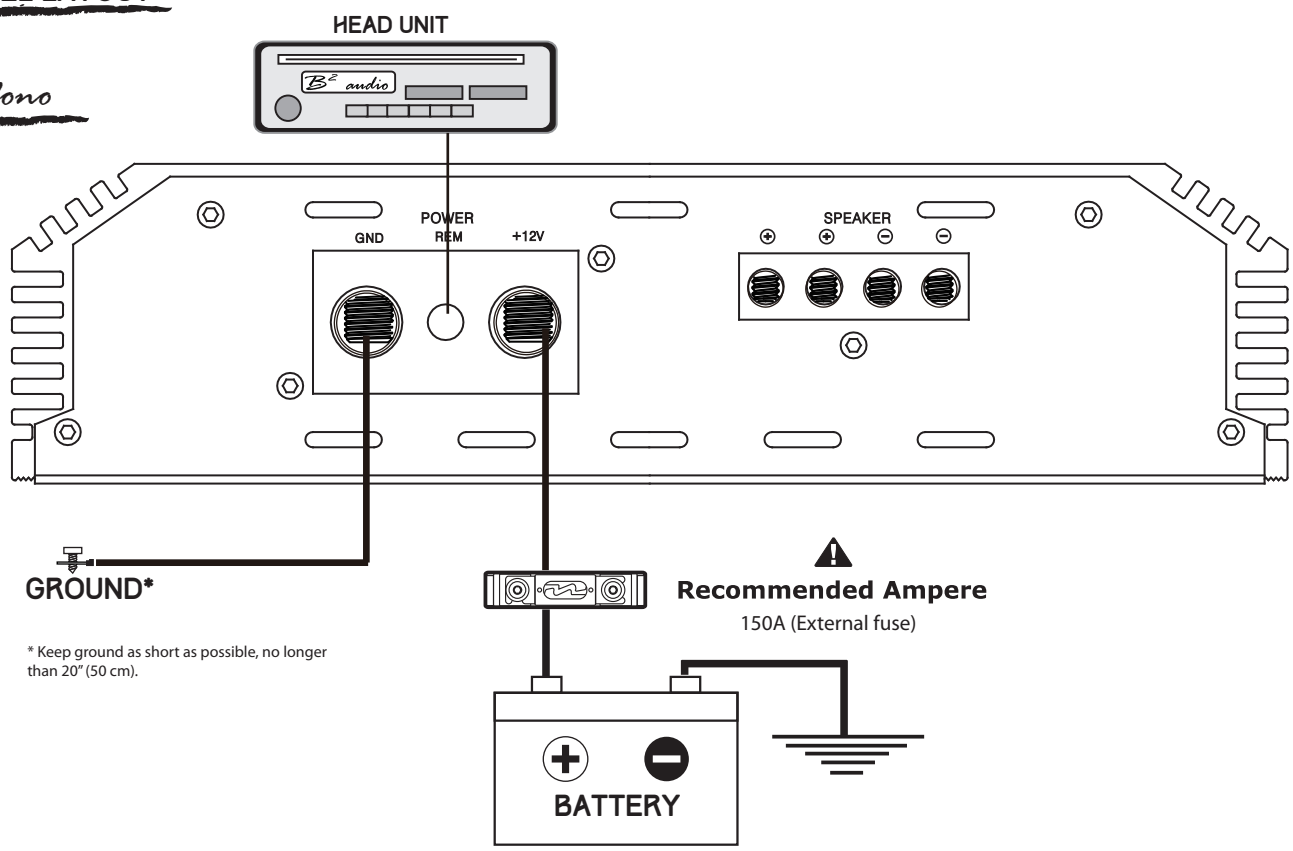
## PANEL LAYOUT

*Mono*




### GND (GROUND CONNECTION)
Connects to the vehicle's chassis.
Keep as short as possible (< 20" / 50 cm)
Use minimum 0 Ga cable for optimal conditions.

### REM (REMOTE)
Connects to switched +12V from the headunit.

### SPEAKER (SPEAKER OUTPUT)
Connects to the speaker(s) leads. Ensure polarity is correct on the speaker and connect to the corresponding output. NOTE, terminal is internally bridged and minimum impedance is 1 ohm.
In STRAPPED mode, minimum load is 2 ohm.
Use high quality cable of at least 12 Ga.

### + 12V (POWER CONNECTION)
Connects to the positive terminal of the battery.
For specified performance 0 Ga cable is required.
Fuses shall be placed within 8" / 20 cm of the battery.
The HI-EF class D design allows for higher output power, even at low voltage applications.
This sets high requirements to the battery system.
Choose batteries with high CCA ratio.

### ⚠ CAUTION

**INSTALLATION OF THE AMPLIFIER SHALL BE DONE IN THE FOLLOWING STEPS:**

1. Connect the +12V wire, keep in mind this wire has to be fused at the battery as well. 2. Ensure the ground is appropriate, then connect it to the amplifier. 3. Connect the switched remote. 4. Reattach negative wire (ground) to the battery. 5. Operation over 16 V will cause the amplifier to go into protect & can void the warranty!

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## INSTALLATION

### INSTALLATION CONSIDERATIONS

If you choose to install the amplifier by yourself, please read the entire owner's manual carefully.
Before you start your installation, please take all steps into consideration.
If in doubt, please go to www.b2audio.com for authorized distributors / dealers that will be able to configure your set up & ensure the warranty of your amplifier.

### PREPARATION

Disconnect the negative (-) battery cable before mounting or making any connection.
Check the battery & alternator ground (-) connection. Make sure they are properly connected/dimensioned & free of corrosion. Before selecting a mounting location for the amplifier, please take cooling & safety into consideration. Avoid areas with excessive vibration & up side down installation!

In order to avoid excessive heat from the amplifier, it is recommended to find a mounting location that allows for vertical positioning of the heatsink fins. For safety purposes, install the amplifier in a dry and well ventilated location and make sure no cables or other harness of the car is interfaced with the mounting location or will present a hazard to the car's cable, control cables, fuel lines/tanks, hydraulic lines or other components of the vechicle. Route the RCA cables away from high current wires, if possible run RCA, Power and Speaker cables individually and with a good distance from each other.

### POWER CONNECTORS

#### 12V (POWER CONNECTION)

Before mounting the amplifier, disconnect the negative (-) wire from the battery to protect any accidental damage to the amplifier or the audio system. The amplifier is equipped with 0 AWG power & ground terminals. It is crucial that all terminals are used with the adequate cable to ensure correct operation.
Connect the power cables to the power terminal labeled as +12V.
The amplifier is not equipped with fuses, so external fuses are required at both the battery and the amplifer.
Connect one end of the fuse holder to the power cable and the other end of the fuse holder to the positive battery terminal within 8'' /20 cm of the same cable. The same shall be done at the other end of the cable that connects to the amplifier. The fuse locations will protect the system and the vehicle against the possibility of a short circuit in the power cable. Make sure that the fuses and the fuse holder is according to the system requirements.

#### GND (GROUND CONNECTION)

Locate a secure grounding connection as close as possible to the amplifier.
Make sure the location is clean and provides a direct electrical connection to the chassis of the vehicle.
Connect one end of an equal sized cable as the positive cable to the location of ground.
It is important that the ground cable is as short as possible, but no longer than 20'' / 50 cm at maximum.
Run one end of the cable to the grounding point. Run the other end of the cable to the mounting location.
Connect the ground cable to the terminals labeled as GND.

#### REM ( REMOTE CONNECTION )

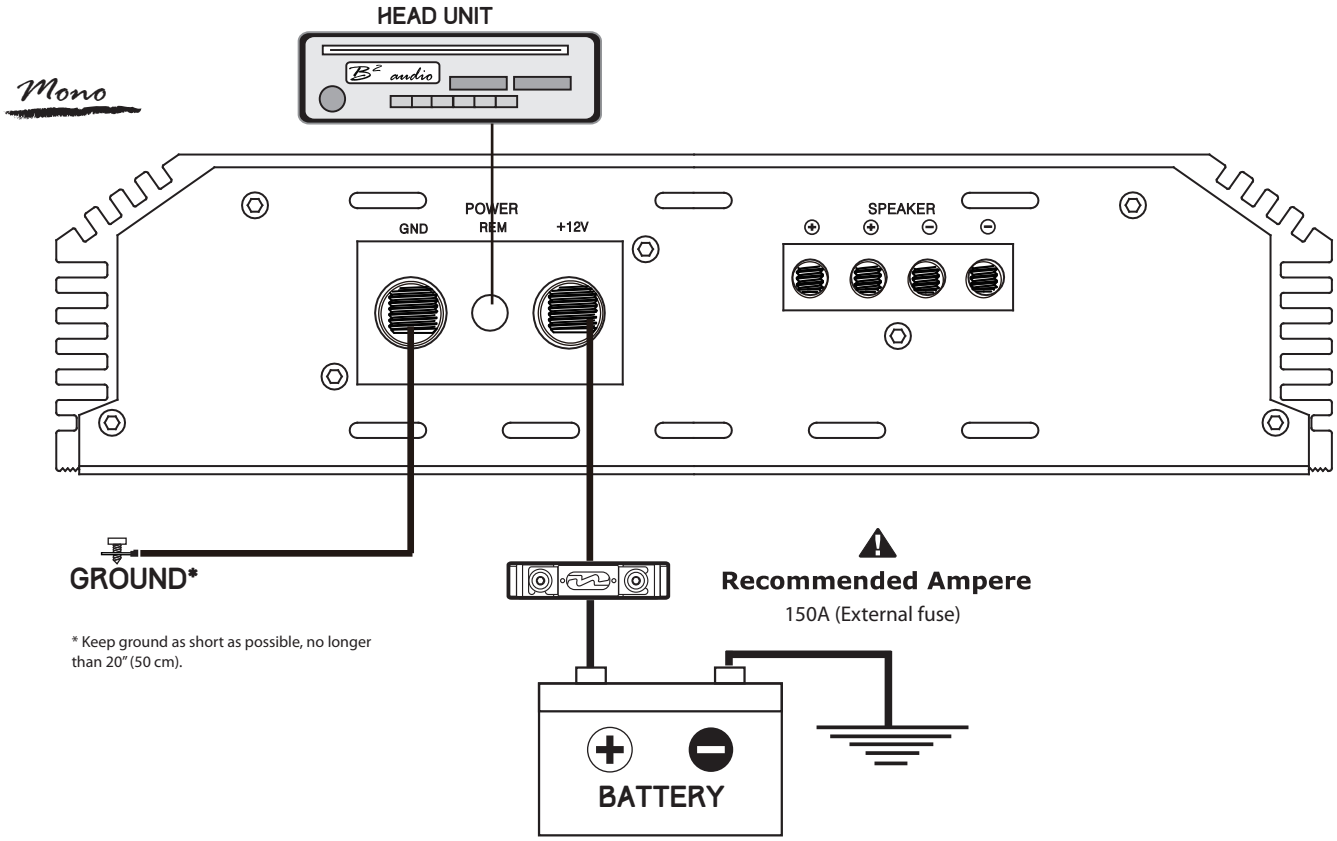
Run a remote turn on cable from the switched +12V source.
This may be a toggle switch, a relay, the source unit's remote ouput cable or power antenna trigger cable.
Connect the remote turn on cable to the power terminal labeled as REM.

#### INPUT (RCA CABLE)

Run the RCA cables away from the high current cables / speaker cables and connect to the amplifier.
Use high qualtity cables with a secure grounding point to avoid amplifier malfunction and / or alternator whine.

## WIRING LAYOUT

### +12V, GND, REM CONNECTION, SPEAKER CONNECTION

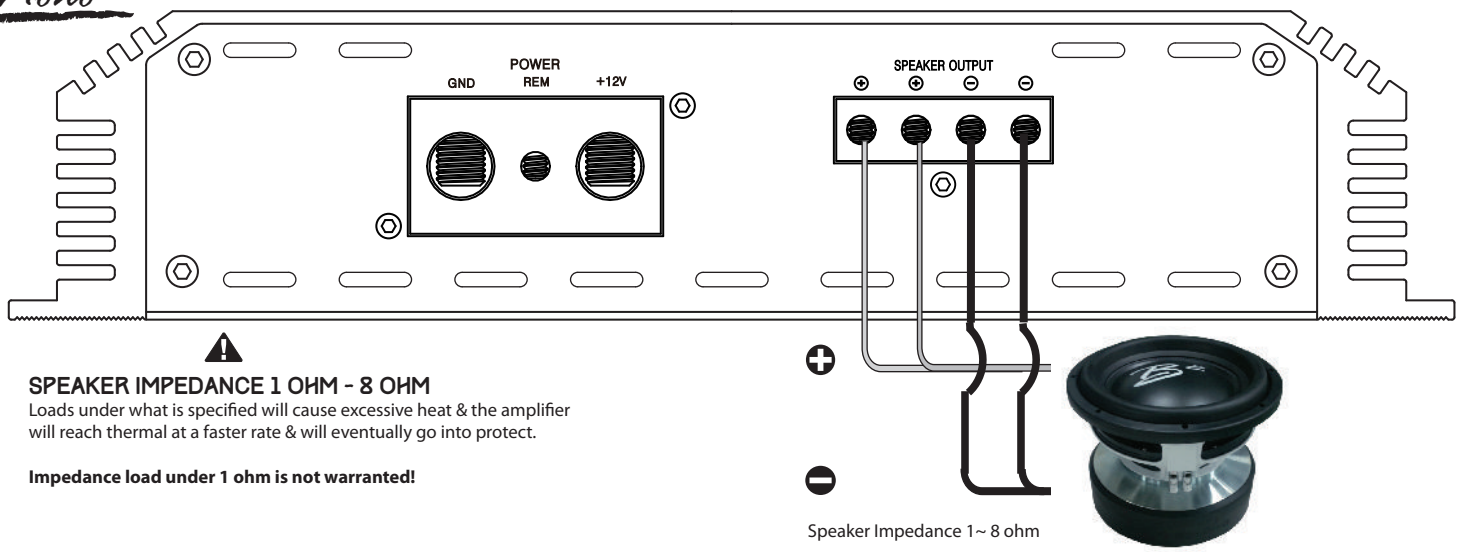



We recommend to use  minumum12 Ga speaker cables to acquire the intended performance.
Run the speaker cables from your speakers to the amplifier's mounting location.
Ensure these are ran separately and away from high current cables and if possible the RCA cables as well.
In all cases where cables are penetrating the vechile's chassis use grommets to protect the cable.

Connect the speaker wires according to the terminals on the speaker(s). Strip 3/8" / 1 cm of insulation of the end of each cable
and twist the cable strands together tightly. Make sure there are no stray strands that could touch other cables or terminals as it can cause a short circut.
Crimp spade plugs over the end of the cable or tin the ends with solder to provide a solid terminal.

## SPEAKER WIRING DIAGRAM - SINGLE AMPLIFIER

*Mono*




### SPEAKER IMPEDANCE 1 OHM - 8 OHM

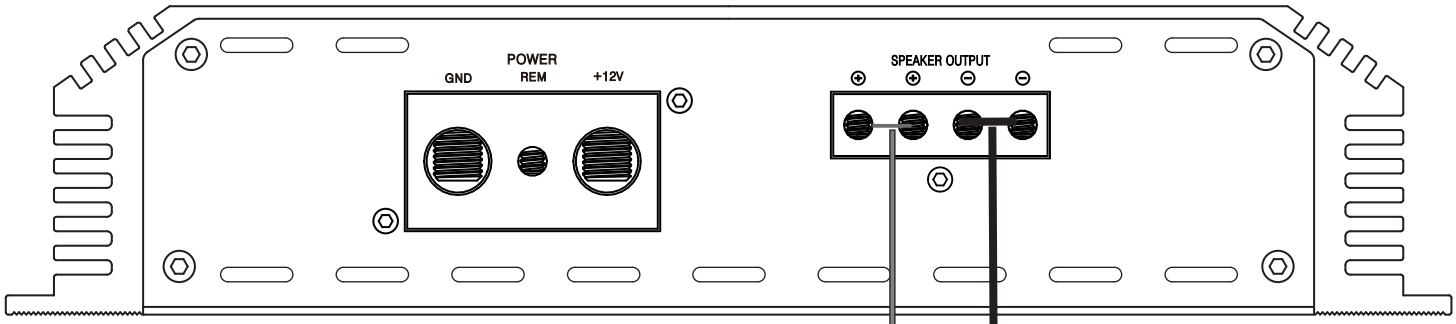
Loads under what is specified will cause excessive heat & the amplifier will reach thermal at a faster rate & will eventually go into protect.

**Impedance load under 1 ohm is not warranted!**



Speaker Impedance 1~ 8 ohm

## STRAPPED SPEAKER WIRING - MASTER / SLAVE



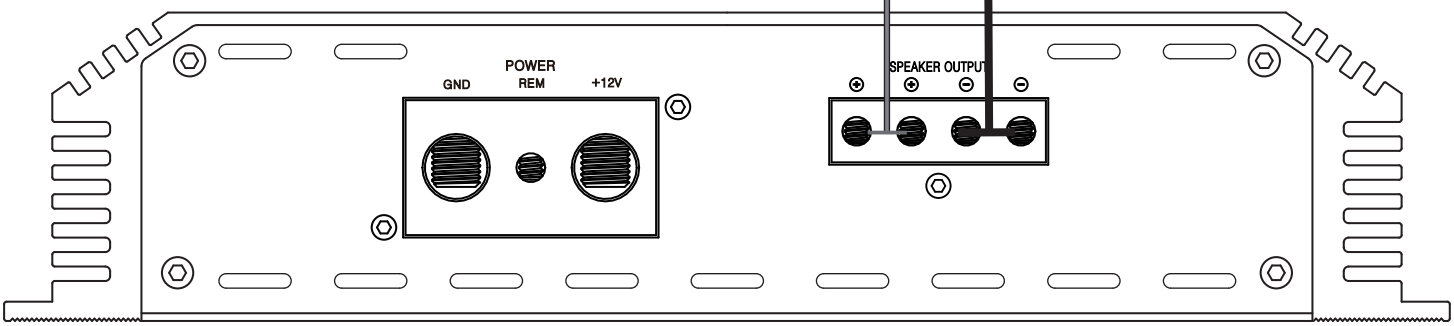

Linking or strapping makes 2 amplifiers work as a single amplifier.
This configuration will near double the rated output power.
Follow the instructions carefully as it can cause harm to your system if done incorrect.

### SPEAKER IMPEDANCE 2 OHM - 16 OHM

Loads under what is specified will cause excessive heat & the amplifier will reach thermal at a faster rate & will eventually go into protect.

**Strapped impedance load under 2 ohm is not warranted!**

Speaker Impedance 2 ~ 16 ohm

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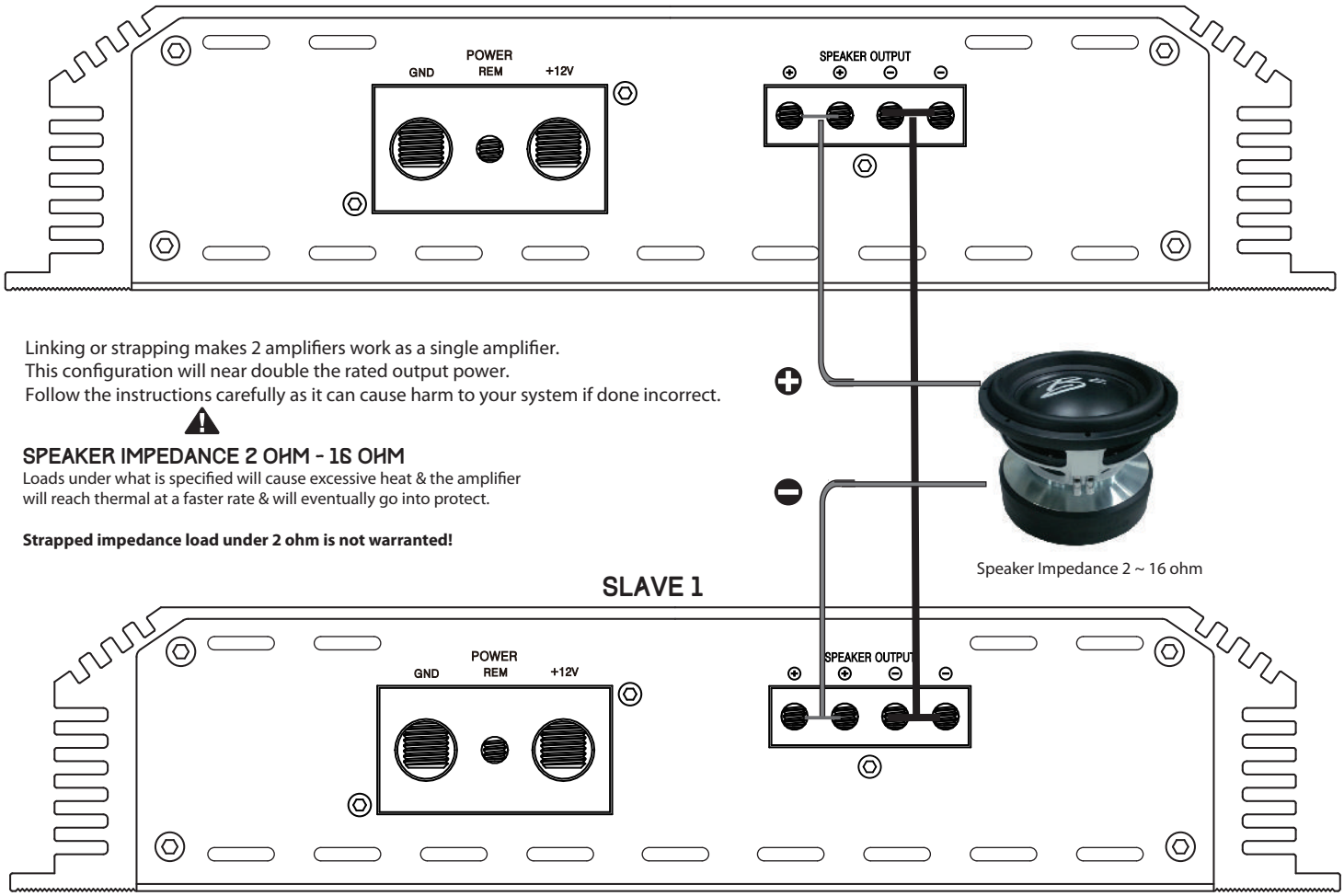
## STRAPPED SPEAKER WIRING - MASTER / SLAVE 1




Linking or strapping makes 2 amplifiers work as a single amplifier.
This configuration will near double the rated output power.
Follow the instructions carefully as it can cause harm to your system if done incorrect.

**SPEAKER IMPEDANCE 2 OHM - 16 OHM**

Loads under what is specified will cause excessive heat & the amplifier will reach thermal at a faster rate & will eventually go into protect.

**Strapped impedance load under 2 ohm is not warranted!**

Speaker Impedance 2 ~ 16 ohm

To link the master and slave 1 amplifier speaker connection follow the steps below.

**STEP 1.**
Run the **POSITIVE (+)** speaker cable from the **MASTER** amplifier's speaker output to the **POSITIVE TERMINAL (+)** of the subwoofer.

**STEP 2.**
Run the **POSITIVE (+)** speaker cable from the **SLAVE 1** amplifier's speaker output to the **NEGATIVE TERMINAL (-)** of the subwoofer.

**STEP 3.**
Connect both amplifiers together by running a cable from **NEGATIVE** speaker output on **MASTER** amplifier to **NEGATIVE** speaker output on **SLAVE 1** amplifier.

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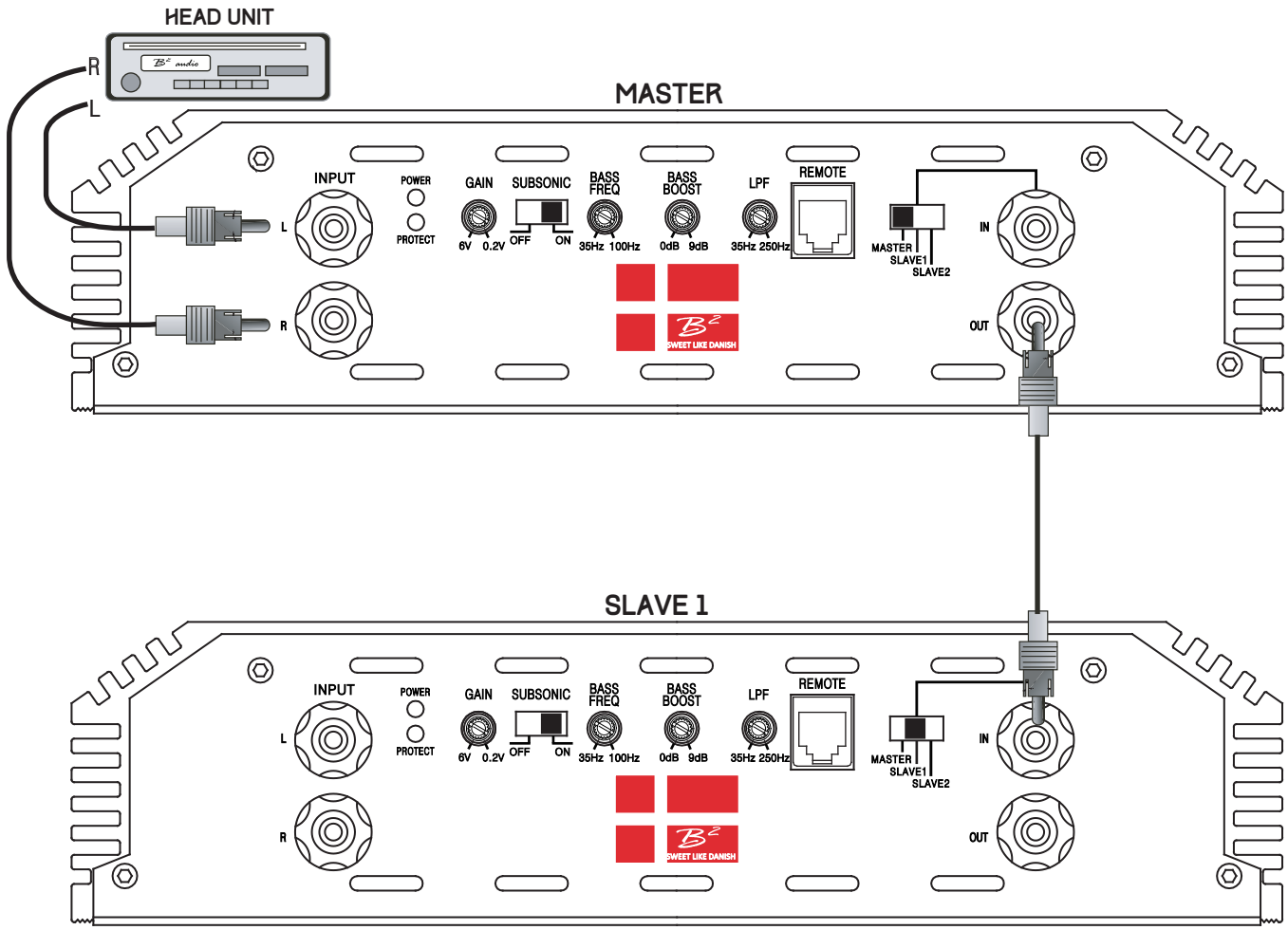
## STRAPPED CONTROL PANEL SETTING MASTER / SLAVE 1




To link the master and slave 1 amplifier RCA connection follow the steps below.

Keep in mind amplifiers needs to be switched off, linking the amplifiers when switched on may cause harm and can void your warranty!

**STEP 1.** Connect RCA from Head Unit / output source into **MASTER** amplifier RCA input.
If only one output is available, then use a Y-split to connect both L & R.

**STEP 2.** Locate the Master / Slave 1 / Slave 2 switch on the right side of the control panel on the **MASTER** amplifier.
Set the switch to **MASTER** position.

**STEP 3.** Connect a single RCA from the **RCA OUT** on the **MASTER** amplifier.

**STEP 4.** Locate the Master / Slave 1 / Slave 2 switch on the right side of the control panel on the **SLAVE 1** amplifier.
Set the switch to **SLAVE 1** position.

**STEP 5.** Connect the single RCA cable from the **MASTER** amplifier's **RCA OUT** to the **SLAVE 1** amplifier's single **RCA IN**.

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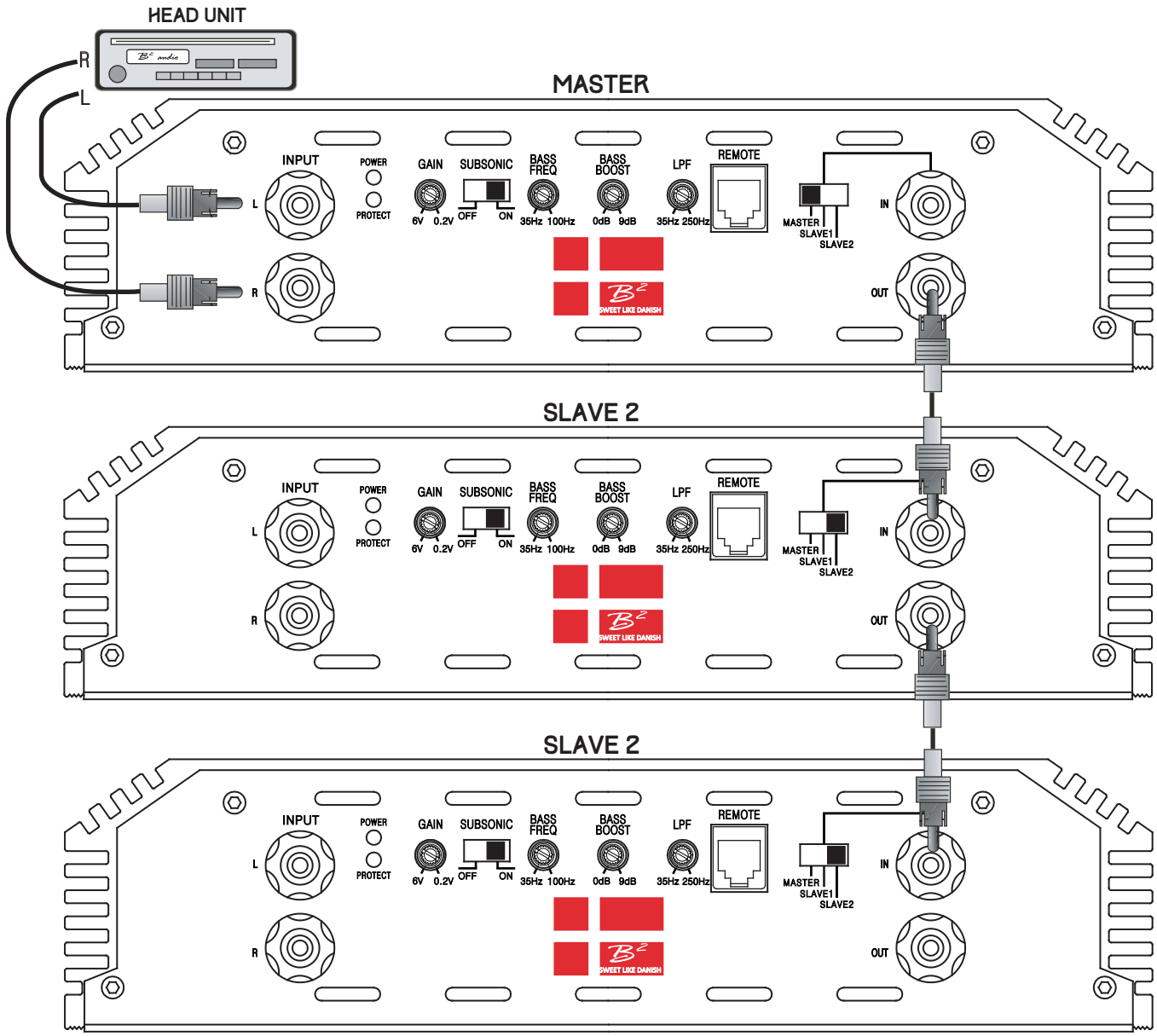
## CONTROL PANEL SETTING MASTER / SLAVE 2 / SLAVE 2




To link the master and slave 2 amplifiers in daisy chain mode follow the steps below. Each slave 2 will be controlled by the master's control panel, but the speakers must be connected individually to each amp. The daisy chain is a true benefit when you have multiple speakers and amps.

**STEP 1.** Connect RCA from Head Unit / output source into **MASTER** amplifier RCA input.
If only one output is available, then use a Y-split to connect both L & R.
**STEP 2.** Locate the Master / Slave 1 / Slave 2 switch on the right side of the control panel on the **MASTER** amplifier. Set the switch to **MASTER.**
**STEP 3.** Connect a single RCA from the **RCA OUT** on the **MASTER** amplifier.
**STEP 4.** Locate the Master / Slave 1 / Slave 2 switch on the right side of the control panel on the first **SLAVE 2** amplifier. Set the switch to **SLAVE 2.**
**STEP 5.** Connect the single RCA cable from the **MASTER** amplifier's **RCA OUT** to the first **SLAVE 2** amplifier's single **RCA IN.**
**STEP 6.** Connect a single RCA from the **RCA OUT** on the first **SLAVE 2** amplifier & connect the other end to the second **SLAVE 2** amplifier's **RCA IN.**
**STEP 7.** Set the Master / Slave 1 / Slave 2 switch on the right side of the control panel on the second **SLAVE 2** amplifer to **SLAVE 2.**
**STEP 8.** Connect the speaker(s) to each individual amp.

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## CROSSOVER - BOOST SETTINGS

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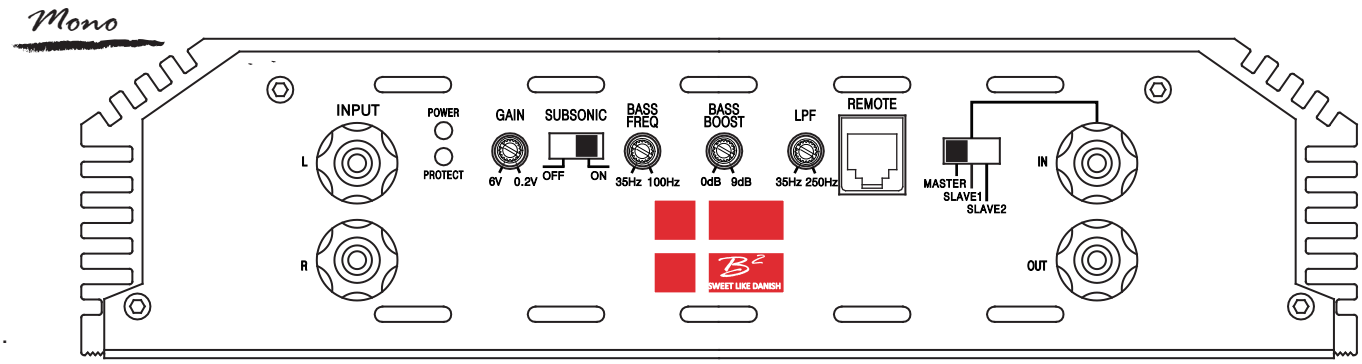


## LOW PASS, BASS FREQ, BASS BOOST

The low pass crossover is 24 dB / oct. Setting it at 80 Hz will then have the signal cut off with 24 dB at 40 Hz (1 octave). To ensure accuracy for the individual crossover frequency the pot feature 41 clicks, each with a corresponding frequency. The same is valid for the Bass frequency and Bass boost settings, which also features 41 clicks.

### CLICK SETTINGS FOR LPF - BASS BOOST - BASS FREQUENCY

| | LPF | BOOST | FREQ | | LPF | BOOST | FREQ | | LPF | BOOST | FREQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | 35 Hz | 0,19 dB | 35,4 Hz | 15. | 71,89 Hz | 1,68 dB | 54,0 Hz | 29. | 186,95 Hz | 7,24 dB | 81,2 Hz |
| 2. | 35,06 Hz | 0,19 dB | 36,2 Hz | 16. | 80,11 Hz | 2,00 dB | 55,5 Hz | 30. | 198,63 Hz | 7,80 dB | 84,2 Hz |
| 3. | 35,06 Hz | 0,20 dB | 37,1 Hz | 17. | 90,07 Hz | 2,30 dB | 57,8 Hz | 31. | 213,71 Hz | 8,40 dB | 85,4 Hz |
| 4. | 35,09 Hz | 0,22 dB | 38,0 Hz | 18. | 104,62 Hz | 2,60 dB | 59,6 Hz | 32. | 217,26 Hz | 8,90 dB | 86,8 Hz |
| 5. | 35,54 Hz | 0,25 dB | 39,2 Hz | 19. | 118,94 Hz | 2,90 dB | 62,6 Hz | 33. | 221,03 Hz | 9,10 dB | 87,8 Hz |
| 6. | 37,14 Hz | 0,28 dB | 43,6 Hz | 20. | 124,42 Hz | 3,25 dB | 66,8 Hz | 34. | 226,16 Hz | 9,25 dB | 88,4 Hz |
| 7. | 39,28 Hz | 0,31 dB | 44,4 Hz | 21. | 129,21 Hz | 3,60 dB | 68,6 Hz | 35. | 230,24 Hz | 9,45 dB | 89,0 Hz |
| 8. | 41,43 Hz | 0,34 dB | 45,4 Hz | 22. | 133,87 Hz | 4,00 dB | 70,0 Hz | 36. | 234,69 Hz | 9,53 dB | 89,4 Hz |
| 9. | 44,12 Hz | 0,41 dB | 46,2 Hz | 23. | 138,86 Hz | 4,40 dB | 71,4 Hz | 37. | 239,83 Hz | 9,62 dB | 90,2 Hz |
| 10. | 47,29 Hz | 0,50 dB | 46,9 Hz | 24. | 145,19 Hz | 4,85 dB | 73,2 Hz | 38. | 244,93 Hz | 9,62 dB | 90,8 Hz |
| 11. | 50,69 Hz | 0,58 dB | 48,2 Hz | 25. | 151,30 Hz | 5,13 dB | 75,4 Hz | 39. | 247,92 Hz | 9,76 dB | 91,4 Hz |
| 12. | 54,87 Hz | 0,82 dB | 49,2 Hz | 26. | 159,47 Hz | 5,90 dB | 76,0 Hz | 40. | 252,53 Hz | 9,81 dB | 91,5 Hz |
| 13. | 59,86 Hz | 1,10 dB | 50,8 Hz | 27. | 167,89 Hz | 6,20 dB | 77,5 Hz | 41. | 252,61 Hz | 9,82 dB | 91,9 Hz |
| 14. | 65,34 Hz | 1,38 dB | 52,2 Hz | 28. | 177,36 Hz | 6,45 dB | 79,8 Hz | | | | |

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## TROUBLESHOOTING

The protection circuits of the amplifier prevents severe damages from faulty conditions & improper use.
The protection indicatior will switch on due to short circuit connection & speaker overload, thus the amplifier will be turned off. Prior to inspecting the occurred problem, turn all levels down & all power off, then carefully check the installation for wiring mistakes, shorts or faulty ground (GND). If the amplifier shuts down due to excessive heat, the protection indicator will light up; please allow time for the unit to be cooled off. Before removing your amplifier, refer to the list below and follow the suggested procedures step by step. If not at ease, contact an authorized installer which can assist you.

### AMPLIFIER DOESN'T TURN ON

- Measure voltage on the +12V terminal.
- Ensure that the remote terminal has min. 13.8 V DC remote connection.
- Recheck the ground (GND) connection. Inspect the in-line fuses.
- Check the protection LED is not on.

### PROTECTION LED IS LIT ONCE THE AMPLIFIER IS TURNED ON

- Check shorts on speaker wires & the connected load / impedance. Check power cables & GND.
- Disconnect the speaker cables and reset the amplifier.
- High / Low voltage, operation voltage is 9 V ~ 16 V+. Voltages below / beyond this will cause the amplifier to go into protect.

### FUSE BLOWING

- Measure the speaker impedance & that it is in accordance with the configuration.
- Inspect the power cable for shorts along with vehicle chassis.

### OVERHEATING

- Measure the speaker impedance & that it is in accordance with the configuration.
- Check speaker shorts.
- Ensure airflow around the amplifier is sufficient & that the amplifier is not installed in areas of excessive vibration & upside down!

### AUDIO OUTPUT INSUFFICIENT - DISTORTED SOUND

- Ensure that the gain settings on the amplifier is matched with the output level of the head unit.
- Adjust the head unit volume.
- Check speaker shorts.
- Adjust the crossover frequencies in accordance with the setup.
- If no output at all, check the RCA connections & the cable itself.

### TURN ON THUMP

- Disconnect the signal input to the amplifier, then turn it on and off.
  a) If the noise is cancelled, then connect a delay turn on module on the REM wire running from the source unit to the amplifier.
  b) Use another 12V source for REM lead to the amplifier. If the noise is cancelled, use a relay to isolate the amplifier from the turn on thump.

### HIGH HISS-ENGINE NOISE IN SPEAKERS

- Ensure that all signal transferring wires (RCA, speaker cables etc) are kept seperately / away from the power and the ground wires.
- Bypass all electrical components between the Head unit and the amplifier. Connect the Head unit directly to the amplifier's input. If the noise is eliminated, the unit bypassed is the one causing the noise.
- Remove the existing ground wires for all electrical components installed. Ensure that the point of ground is 100% metal which has been grinded free of rust, paint etc.
- Replace the ground cable from the OEM battery / alternator and ensure it is grounded accordingly.
- Test the battery and alternator load (can be carried out by a professional). Ensure that the vehichle's electrical system is in a good condition, this includes distributor, alternator, spark plugs / wires, voltage regulators etc.

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**LIMITED WARRANTY INFORMATION**

B2 audio offers a limited warranty under the following terms:
The product is to be free of defects in material & workmanship under normal use for a period of 1 year from the date of the original purchase, when installed by an authorized dealer. Items not installed by authorized dealers will be warrantied for 30 days from the original purchase. Original sales receips must be accompanied with all returns.The warranty applies to the original purchaser of the product & it being sold by authorized B2 audio dealers.

The warranty does **not** cover: 1. Damage caused by accident, abuse, misuse, improper operation, water / solvents & shipping.
2. Product modification, neglect, failure to follow installation instructions & misrepresentation by the seller.
3. Products used for competition purposes or are of such a charachter 4. Any product that has been opened.
5. Products that has had the serial number defaced, altered or removed.
6. The cost of shipping the product back for repair to an authorized repair centre & cost of return of non-defective items.